

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-218871

(43)Date of publication of application : 06.08.2002

---

(51)Int.CI.

A01K 89/01

A01K 89/015

F16B 5/02

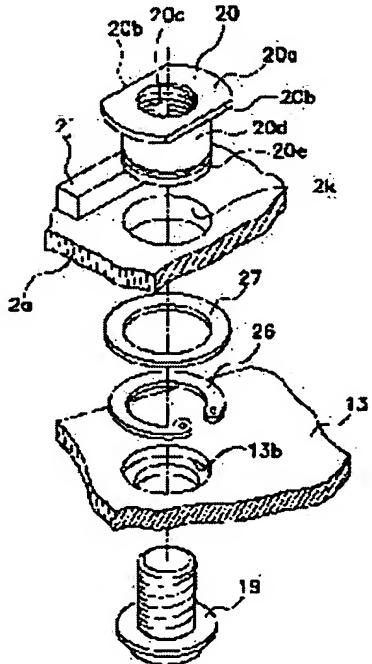
---

(21)Application number : 2001-015599 (71)Applicant : SHIMANO INC

(22)Date of filing : 24.01.2001 (72)Inventor : MORISE YASUO

---

## (54) STRUCTURE FOR FASTENING COMPONENT FOR FISHING TACKLE



### (57)Abstract:

**PROBLEM TO BE SOLVED:** To easily fasten components for fishing tackles while scarcely causing a galvanic corrosion and suppressing exfoliation of a corrosion-resistant film in a structure fastening two components.

**SOLUTION:** This structure for fastening the components for fishing is a structure for fastening the components for fishing tackles and equipped with the main body 2 of reel, a nut member 20, a protective cover 13 and a machine screw 19. The main body 2 of reel is a component made of a magnesium alloy which the corrosion-resistant film is formed on the surface. The nut member 20 is a member

installed to the main body 2 of reel so as to be incapable of rotating and moving to the axial direction. The protective cover 13 is a component fastened to the main body of reel. The machine screw 19 is a metallic member screwed to the nut member 20 for fastening the protective cover 13 to the main body 2 of reel.

---

**LEGAL STATUS**

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office

\* NOTICES \*

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

CLAIMS

---

[Claim(s)]

[Claim 1] When this core (1) consists of a rubber constituent containing the organosulfur compound A weight section, the organic peroxide B weight section, and the joint use pons agent C weight section to the polybutadiene 100 weight section in a three-piece solid golf ball which consists of covering (3) which covers the middle class (2) formed on a core (1) and this core, and this middle class, it is formula: $F = (AxB) 2xC / (A+B)$ .

Come out, and combination variables F with which it is expressed are 1-8, and surface hardness by JIS-C degree of hardness of this core (1) K, a time of expressing [ a degree of hardness according a degree of hardness by this middle class's (2)'s JIS-C degree of hardness to a JIS-C degree of hardness of L and this covering (3) ] thickness of W (mm) and this covering with X (mm) for thickness of M and this middle class -- formula: $S = [(K-L) xW] / [(M-K) xX] --$

A three-piece solid golf ball which comes out and is characterized by for impact-absorbing variables S with which it is expressed being 0.4-1.0, and hardness differences (K-L) being 10-30.

[Claim 2] A three-piece solid golf ball according to claim 1 whose differences (K-J) with a main degree of hardness (J) by surface hardness (K) of said core (1) and JIS-C degree of hardness of this core are 2-8.

[Claim 3] A three-piece solid golf ball of claims 1 or 2 given in any 1 term with which said interlayer (2) contains 10 - 100% of polyurethane system thermoplastic elastomer to the whole base material resin.

[Claim 4] A three-piece solid golf ball of claims 1-3 whose ratios (D/E) of the amount of compression sets (D) of a time of carrying out the load of the 1274 Ns of the \*\*\*\*\* from a condition which carried out the load of the 98 Ns of the initial loads of

said core (1), and the amount of compression sets (E) of a time of carrying out the load of the 1274 Ns of the \*\*\*\*\* from a condition which carried out the load of the 98 Ns of said interlayer's (2)'s initial loads are

[Claim 5] said interlayer's (2)'s specific gravity -- a three-piece solid golf ball of claims 1-4 or more with 0.07 [ larger ] than specific gravity of said core (1) given in any 1 term.

---

[Translation done.]

## \* NOTICES \*

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

## DETAILED DESCRIPTION

---

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] Especially this invention relates to the conclusion structure of the components for fishing for concluding the components for fishing.

[0002]

[Description of the Prior Art] In order to attain lightweight-ization of the components for fishing in recent years, the components for fishing made from a Magnesium alloy are adopted. In order to conclude other components for fishing on the components for fishing made from this kind of Magnesium alloy, screw members, such as a smallness screw, are adopted well conventionally. For example, other components for fishing, such as a covering member, are concluded with the small screw on components for fishing, such as a main part of a reel made from a Magnesium alloy. Since it is easy to corrode a Magnesium alloy, anticorrosion coats, such as anodized coating, are usually formed in the surface of the components for fishing. When concluding components with a small screw, the boss section is prepared in one components for fishing, the female screw section is formed in the boss section, the components for fishing of another side are countered at the female screw section, a mounting hole is formed, a small screw is inserted from the mounting hole, and the small screw is made to screw in the female screw section.

[0003]

[Problem(s) to be Solved by the Invention] With the conclusion structure of said conventional component for fishing, in order to raise corrosion resistance, when the small screw made from a stainless alloy is adopted, there is a possibility that electrolytic etching may arise among the components for fishing made from magnesium. Moreover, when the female screw section is formed in the components for fishing made from magnesium, there is a possibility that it may exfoliate when the anodized coating of the inner skin of the female screw section repeats and carries out desorption of the small screw, and corrosion may advance from the portion. Although piling up a coat further on anodized coating in order to prevent this is performed, when the diameter of a screw is small, the pitch of a screw becomes small and a coat will bury a screw thread. When a screw thread is buried, the technical problem of this invention which becomes that it is hard to make a small screw screw in the female screw section, and stops being able to conclude other components for fishing easily is in the conclusion structure of the components for fishing to suppress exfoliation of an anticorrosion coat that it is hard to produce electrolytic etching, and enable it to conclude both components easily.

[0004]

[Means for Solving the Problem] Conclusion structure of components for fishing concerning invention 1 is the structure for concluding components for fishing, and is equipped with components for the 1st fishing, a nut member, components for the 2nd fishing, and a screw member. Components for the 1st fishing are components made from a Magnesium alloy with which an anticorrosion coat was formed in the surface. A nut member is a member with which components for the 1st fishing were equipped at rotation impossible and shaft-orientations migration impossible. Components for the 2nd fishing are components concluded by components for the 1st fishing. A screw member is a metal member screwed in a nut member, in order to

conclude components for the 2nd fishing on components for the 1st fishing.

[0005] With conclusion structure of this component for fishing, in case components for the 2nd fishing are concluded on components for the 1st fishing, a screw member is made to screw in a nut member with which components for the 1st fishing made from a Magnesium alloy were equipped, and both components are concluded. Here, the direct female screw section is not formed in components for the 1st fishing made from a Magnesium alloy, and since both components are concluded by equipping components for the 1st fishing with a nut member at rotation impossible and shaft-orientations migration impossible, even if it repeats desorption, an anticorrosion coat of components for the 1st fishing cannot exfoliate easily. Moreover, electrolytic etching can be prevented by making it a product made from the metallurgy group made of synthetic resin which cannot carry out electrolytic etching of the nut member easily to components for the 1st fishing. Furthermore, since it is not necessary to form anticorrosion coats, such as a paint film, in a nut member, even if a diameter of a screw is small, conclusion of both components is easy. Thus, if a diameter of a screw is made small, torque which turns a screw member will become small, and it is hard coming to generate the so-called screw \*\*\*\* in which a female screw breaks.

[0006] In structure given in invention 1, a nut member of conclusion structure of components for fishing concerning invention 2 is a product made from an aluminium alloy, and a screw member is a product made from a stainless alloy. In this case, since it is made a product made from the aluminium alloy which cannot carry out electrolytic etching of the nut member easily to components for the 1st fishing while components for the 1st fishing and a screw member do not contact directly even if it concludes using a screw member made from a stainless alloy which is easy to carry out electrolytic etching to a Magnesium alloy, it is hard to produce electrolytic etching.

[0007] In structure given in invention 1, components for the 1st fishing of conclusion structure of components for fishing concerning invention 3 are the main parts of a reel of a reel for fishing, and components for the 2nd fishing are covering members concluded by main part of a reel. In this case, in order to prevent with [ of a main part of a reel made from a Magnesium alloy ] a blemish, when equipping a main part of a reel with a covering member, exfoliation of an anticorrosion coat is suppressed that it is hard to produce electrolytic etching, and both components can be concluded easily.

[0008] As for a nut member and a screw member, conclusion structure of components for fishing concerning invention 4 has a screw of a minor diameter not more than M2 in structure given in either of the invention 1-3. In this case, even if it concludes both components with a screw of a minor diameter, exfoliation of an anticorrosion coat is suppressed that it is hard to produce electrolytic etching, and both components can be concluded easily.

[0009]

[Embodiment of the Invention] [Whole configuration] In drawing 1 , the spinning reel which adopted 1 operation gestalt of this invention is equipped with the main part 2 of a reel with which a fishing rod can be equipped, the handle assembly 1 with which the main part 2 of a reel was equipped free [ the rotation to the circumference of a lateral axis ], Rota 3, and spool 4. Rota 3 has the rockable bail arm 40 into the thread disconnection posture and the thread winding posture, and rotation of the handle assembly 1 is interlocked with, it rotates, and it shows a fishing line to spool 4. Rota 3 is supported by the anterior part of the main part 2 of a reel free [ the rotation to the circumference of an antero-posterior axis ]. Spool 4 rolls round the fishing line guided by Rota 3 to a peripheral face, and is arranged free [ both-way migration in the direction of an antero-posterior axis ] at the anterior part of Rota 3.

[0010] [Configuration of the main part of a reel] The main part 2 of a reel has reel body 2a made from a Magnesium alloy which constitutes the principal piece of the main part 2 of a reel, and has opening 2c in a flank, beam attachment foot 2b of the shape of T character prolonged in one ahead [ slanting up ] from reel body 2a, and covering device material 2d made from a Magnesium alloy by which the screw stop was carried out to reel body 2a so that opening 2c might be closed, as shown in drawing 3 . The anodized coating as an anticorrosion coat is formed in the surface of such reel body 2a, beam attachment foot 2b, and covering device material, and the

coat is further formed on it.

[0011] Reel body 2a has the space for device wearing which stands in a row in opening 2c inside, and in the space, as shown in drawing 2, the linkage 7 which connects the Rota drive 5 which is interlocked with rotation of the handle assembly 1 and made to rotate Rota 3, the oscillating device 6 for moving spool 4 forward and backward and rolling round a fishing line to homogeneity, and the Rota drive 5 and the oscillating device 6 is established.

[0012] As shown in drawing 3, 2f of tubed parts which project ahead from 1st flange 2e and 1st flange 2e is formed in the anterior part of reel body 2a. 1st flange 2e has the shape of an abbreviation hemicycle which lacked the portion which consists of a bowstring and a circle, and is stood in a row and formed in the front end of opening 2c. 2f of tubed parts is the portion of the shape of a cylinder whose diameter is gradually reduced to three steps, and rotation impossible is equipped with the one-way clutch 51 of the inversion prevention device 50 for forbidding and canceling rotation (inversion) of the thread delivery direction of Rota 3 as shown in the interior at drawing 2. Notch 2i (drawing 3) is formed in the front end section of 2f of tubed parts. Notch 2i is prepared in order to exchange tip 16b of return member 16a at the time of inclusion of return member 16a of the bail reversal device 16 which returns the bail arm 40 to a thread winding posture. That is, the front end section outer diameter of 2f of tubed parts is arranged outside the direction location of a path of tip 16b of return member 16a. For this reason, it is because it returns at the time of inclusion, member 16a returns in the front end section and the tip of member 16a cannot be arranged to the back side of 2f of tubed parts, if there are no notch 2i. Return member 16a is the member of the configuration which bent the both ends of a wire rod to hard flow, and tip 16b is rounded off. The method of the outside of the direction of the diameter of a spool for a middle bay is equipped with the presser-foot member 77. It is equipped with the presser-foot member 77 in the 1st Rota arm 31, and in order that the deformation to the method of the outside of the direction of the diameter of a spool of return member 16a may stop, it is prepared.

[0013] 2h of slots of the shape of a cross-sectional-view D character of a minor diameter is formed in the back end section of 2f of tubed parts more slightly than other portions. 2h of slots is equipped with Rota braking member 17a of the shape of a ring made from an elastic body which can contact tip 16b of return member 16a. A covering device material 2d wearing portion is open for free passage to opening 2c, and the rear face of 2h of slots is opened wide.

[0014] The 2g of the 2nd flange formed in the shape of [ to which covering device material 2d becomes the front end section from the bowstring and circle of a lack portion of 1st flange 2e ] an abbreviation hemicycle is really formed. The contact surface with a tubed parts [ of the 2g of the 2nd flange / 1st flange 2e and 2f of tubed parts ] rear face is equipped with the water seal 81 made from the elastic body for carrying out the seal of the crevice between these. The water seal 81 is formed in band-like [ of an abbreviation semicircle arc ] succeeding the location which is missing from a rear face from the front face of the 2g of the 2nd flange, and counters the contact surface of the contact surface with 1st flange 2e, and the rear face of 2h of slots. Wearing slot 81a of an abbreviation semicircle arc formed in the front face of the 2g of the 2nd flange is equipped with the water seal 81. When really fabricating reel body 2a and beam attachment foot 2b, the draft of a sake without a mold is made the rear face of 2f of tubed parts. Moreover, the same draft also as the 2g of the 2nd flange of covering device material 2d is formed. Therefore, the way things stand, since a crevice opens between tubed parts [ of covering device material 2d / the 2g of the 2nd flange and 2f of tubed parts ] rear faces and it is hard to carry out a seal to it for the draft, the water seal 81 is formed. Moreover, between 1st flange 2e and the 2g of the 2nd flange, it is equipped with return projection 17b of the bail reversal device 16 free [ attachment and detachment ]. Return projection 17b is for contacting return member 16a and returning the bail arm 40 to a thread winding posture.

[0015] The posterior part of the main part 2 of a reel is covered with the protective cover 13 made of metal or synthetic resin, as shown in drawing 2 and drawing 3. The protective cover 13 is arranged so that it may apply to a back pan at beam attachment foot 2b from the lower part of reel body 2a and covering device material 2d and the lower part and the back of the main part 2 of a reel may be covered. The protective cover 13 is being fixed free [ attachment and

detachment with the small screws 18 and 19 ] for the posterior part of the main part 2 of a reel, and the lower part to two places. The upper small screw 18 is a small screw of M3, and is directly thrust into the back of beam attachment foot 2b of the main part 2 of a reel. The lower small screw 19 is a small screw of M2, and as shown in drawing 4, it is thrust into the nut member 20 with which the lower part of reel body 2a was equipped free [ attachment and detachment ].

[0016] the nut member 20 -- a collar -- it is a member made from a with cylinder-like aluminium alloy. As shown in drawing 5, chamfer 20b parallel to each other who is stopped by baffle projection 2j formed in the lower part of reel body 2a is formed in flange 20a of the nut member 20. Female screw section 20c is formed in the inner skin of the nut member 20, and this female screw section 20c screws in the small screw 19. It is equipped and rotation is impossible to reel body 2a. Moreover, annular [ which is equipped with the snap ring 26 for an omission stop ] falls out, and stop slot 20e is formed in the lower limit side of 20d of cylinder parts of the nut member 20. Through tube 2k formed in the lower part of reel body 2a is equipped with 20d of cylinder parts. This through tube 2k counters screw mounting hole 13b formed in the lower part of a protective cover 13, and is arranged.

[0017] In the condition of having equipped with the nut member 20, it is equipped with the insulating ring 27 between the snap ring 26 and a protective cover 13. The insulating ring 27 is formed in order to insulate reel body 2a and a protective cover 13 and to prevent electrolytic etching, when a protective cover 13 is metal.

[0018] With such a configuration, it equips with the snap ring 26, after equipping through tube 2k with the nut member 20 until flange 20a contacts reel body 2a, and equipping with an insulating ring 27. Chamfer 20c formed in flange 20a by this is stopped by baffle projection 2j, and the baffle of the nut member 20 is carried out. After equipping with an insulating ring 27 20d of cylinder parts projected from the inferior surface of tongue of reel body 2a in this condition, it escapes from the snap ring 26 and stop slot 20e is equipped. Thereby, the nut member 20 falls out, and a stop is carried out, and it becomes migration impossible to shaft orientations.

[0019] Between the protective cover 13 and the main part 2 of a reel, spacer 13a made of synthetic resin is infix. Spacer 13a is infix in order to insulate when a protective cover 13 is metal, and to prevent electrolytic etching, while filling the crevice between a protective cover 13 and the main part 2 of a reel. By making such spacer 13a infix, even if it manufactures a protective cover 13 with synthetic resin, fluctuation of the crevice by the manufacture error is absorbable.

[0020] After a protective cover 13 equips reel body 2a with covering device material 2d, the main part 2 of a reel is equipped with it. At this time, the screw stop of the upper small screw 18 is soon carried out to beam attachment foot 2b. On the other hand, the nut member 20 is equipped with the small screw 19 of the minor diameter bottom. If the nut member 20 is equipped with the small screw 19, flange 20a will stick to reel body 2a strongly, and the main part 2 of a reel will be equipped with a protective cover 13.

[0021] [Configuration of the Rota drive] The Rota drive 5 has the master gear 11 by which rotation impossible was equipped with the handle assembly 1, and the pinion gear 12 which meshes with these master gear 11, as shown in drawing 2.

[0022] Master gear 11 are contrate gears and are the master-gear shaft 10 and really formed. For example, stop hole 10a by which the handle assembly 1 is stopped by rotation impossible was formed in the center, it is the member of the hollow made from stainless steel, and, as for the master-gear shaft 10, the both ends are supported by reel body 2a and covering device material 2d free [ rotation ] through bearing.

[0023] As shown in drawing 2, the pinion gear 12 is a tubed member, it is arranged along with a cross direction and reel body 2a is equipped with it free [ rotation ]. Anterior part 12a of the pinion gear 12 has penetrated the core of Rota 3, and is being fixed with Rota 3 with the nut 33 in this penetration portion. The pinion gear 12 is supported by reel body 2a free [ rotation ] through Bearing 14a and 14b, respectively in the pars intermedia and the back end section of shaft orientations. The spool shaft 15 has penetrated the interior of this pinion gear 12. The pinion gear 12 meshes also in the oscillating device 6 through the linkage 7 while meshing with

master gear 11.

[0024] [Configuration of an oscillating device and a linkage] The oscillating device 6 has \*\*\*\* 21 arranged in parallel with the lower part of the spool shaft 15, the slider 22 which moves to a cross direction along with \*\*\*\* 21, and the middle gear 23 fixed at the tip of \*\*\*\* 21, as shown in drawing 2. The slider 22 has the engagement member (not shown) which engages with the spiral slot of \*\*\*\* 21. The slider 22 is supported free [ migration on the guide shafts 24 and 24 of the two upper and lower sides arranged in parallel with \*\*\*\* 21 ]. The back end of the spool shaft 15 is being fixed to the slider 22 by rotation impossible. The middle gear 23 meshes with the pinion gear 12 through the linkage 7.

[0025] The linkage 7 has the 1st gear 37 which meshes with the pinion gear 12, the 2nd gear 38 which meshes with the middle gear 23, and the connecting shaft 39 which connects both the gears 37 and 38, as shown in drawing 6. The connecting shaft 39 is arranged aslant at the anterior part of reel body 2a, and is supported free [ rotation ] through Bearing 29a and 29b by the cap 28 with which it was equipped with both ends free [ attachment and detachment ] at reel body 2a and its bottom flank.

[0026] As shown in drawing 7, the 2nd gear 38 is a connecting shaft 39 and really formed. Pars intermedia 39c, the 2nd gear 38, and the 39d of the 2nd support sections of a major diameter are formed [ a / 1st support section 39a of a minor diameter, and / 1st support section 39 ] in the connecting shaft 39 from the drawing 7 upper part from stop section 39b of a major diameter, and stop section 39b. Stop section 39b stops the 1st gear 37 to rotation impossible, and parallel chamfer 39e is formed there mutually for a stop. Stop section 39b, lobe 37a of \*\*\*\*, and through tube 37c that 1st support section 39a can pass are formed in the 1st gear 37. Parallel slitting section 37b is mutually formed in lobe 37a, chamfer 39e is inserted and stopped by the medial surface of slitting section 37b, and a connecting shaft 39 is equipped with the 1st gear 37 at rotation impossible. The periphery side of lobe 37a is equipped with the sleeve 48. the bore of a sleeve 48 -- the outer diameter of lobe 37a, and abbreviation -- the same -- an outer diameter -- the outer diameter of pars intermedia 39c, and abbreviation -- it is the same. Even if it prepares slitting section 37b in lobe 37a by equipping with this sleeve 48, reinforcement stops being able to fall easily, and even if torque acts on a connecting shaft 39, it can prevent that slitting section 37b opens.

[0027] [Configuration of Rota] Rota 3 has the body 30 fixed to the pinion gear 12, the 1st and 2nd Rota arms 31 and 32 which countered the side of a body 30 mutually and were prepared in it, and the bail arm 40 for showing a fishing line to spool 4. A body 30 and both the Rota arms 31 and 32 are for example, the products made from an aluminium alloy, and it is really fabricated.

[0028] As shown in drawing 8, the front wall 41 is formed in the anterior part of a body 30, and the boss section 42 which projects back is formed in the core of a front wall 41. The through tube stopped by the pinion gear 12 at rotation impossible is formed in the core of this boss section 42, and anterior part 12a of the pinion gear 12 and the spool shaft 15 have penetrated this through tube.

[0029] The nut 33 is screwing in anterior part 12a of the pinion gear 12, and Rota 3 is fixed to the point of the pinion gear 12 by rotation impossible with this nut 33. Bearing 35 is arranged at the inner circumference side of a nut 33. Bearing 35 is formed in order to secure a crevice between the spool shaft 15 and the inside of the pinion gear 12. The inner circumference side is equipped with the seal member 36 which has a lip in the front face of a nut 33 and bearing 35. The tip of the seal member 36 touches the spool shaft 15. Thereby, permeation of the liquid from the spool shaft 15 to the interior of the main part 2 of a reel can be prevented.

[0030] The inversion prevention device 50 which adjoined the boss section 42 and was mentioned above is arranged. The inversion prevention device 50 has the one-way clutch 51 and the change over device 52 which switches an one-way clutch 51 to an operating state (inversion prohibition condition) and a non-operating state (inversion authorized state), as shown in drawing 2.

[0031] An one-way clutch 51 is an one-way clutch of the roller type of the inner-ring-of-spiral-wound-gasket idling mold with which the pinion gear 12 was equipped with inner-ring-of-spiral-wound-gasket 51a at rotation impossible, and 2f of tubed parts was equipped with outer-ring-of-

spiral-wound-gasket 51b at rotation impossible. Between inner-ring-of-spiral-wound-gasket 51a and the boss section 42 of Rota 3, as shown in drawing 8, the gap member 43 made from a stainless alloy is infixed. The gap member 43 is a thin cylinder member which has cylinder part 43a and disk section 43b, cylinder part 43a is inserted in the periphery of the boss section 42, and disk section 43b is inserted between the front end side of inner-ring-of-spiral-wound-gasket 51a, and the boss section 42.

[0032] In the interior of 2f of tubed parts, it is equipped with the shaft sealing 85 with a lip ahead of the one-way clutch 51. The tip lip of shaft sealing 85 touches the peripheral face of cylinder part 43a of the gap member 43. Here, since disk section 43b is inserted into the boss section 42 and inner-ring-of-spiral-wound-gasket 51a by the inner circumference side of the gap member 43, a liquid cannot invade easily. Therefore, if the seal of the peripheral face of the gap member 43 is carried out, a liquid will stop easily being able to trespass upon the interior of 2f of tubed parts. Here, if shaft sealing 85 is contacted in the direct boss section 42 and having formed the gap member 43 will not align Rota 3 correctly when Rota 3 is fixed to the pinion gear 12, seal nature with shaft sealing 85 worsens. Then, the seal engine performance of shaft sealing 85 can be stabilized by equipping with the gap member 43 and performing the alignment with shaft sealing 85 beforehand.

[0033] The change over device 52 has the stopper shaft 53, as shown in drawing 2. Reel body 2a is equipped with the stopper shaft 53 free [rocking] between the posture in which it does not operate, and the actuation posture. The stopper shaft 53 has stopper tongue 53a which penetrated reel body 2a and a protective cover 13, and was back projected for actuation, shank 53b to which stopper tongue 53a was fixed, and cam section 53c fixed at the tip of shank 53b.

[0034] Stopper tongue 53a is being fixed to shank 53b free [attachment and detachment] with the hexagon-socket-head stop screw 58, as shown in drawing 3. Here, attachment and detachment of stopper tongue 53a were enabled to shank 53b because it was necessary to remove stopper tongue 53a when removing a protective cover 13 in order to remove covering device material 2d. It can be made hard to catch a fishing line, without hiding the head of a screw by sedentary reeling \*\*\*\*, since there is no head of a screw by using the hexagon-socket-head stop screw 58 for immobilization of this stopper tongue 53a.

[0035] The toggle spring device 59 distributes cam section 53c to the posture in which it does not operate, and an actuation posture, and it is energized. The tip of cam section 53c engages with an one-way clutch 51, and it is constituted so that an one-way clutch 51 may be switched to a non-operating state and an operating state with rocking of a stopper shaft 53.

[0036] [Configuration of a spool] As shown in drawing 2, spool 4 is the thing of the vadum form made from an aluminium alloy by which cold forging was carried out, and is arranged between the 1st Rota arm 31 of Rota 3, and the 2nd Rota arm 32. The spool 4 is connected with the point of the spool shaft 15 through the drag device 60. The spool 4 has bobbin drum section 4a by which a fishing line is wound around a periphery, skirt-board section 4b formed in the posterior part of bobbin drum section 4a by one, and flange 4c prepared in the front end of bobbin drum section 4a.

[0037] It is the member of the shape of a cylinder of three-fold abbreviation in which bobbin drum section 4a has 4g of tubed boss sections at the center, and has 4h of tubed drag stowages between 4g peripheries of boss sections as shown in drawing 8 and drawing 9, and the peripheral face for a body by the side of a periphery consists of peripheral surfaces parallel to the spool shaft 15. As shown in drawing 6, the spool shaft 15 is equipped with bobbin drum section 4a free [rotation] by two bearing 56 and 57 with which 4g of boss sections was equipped. A gap is separated in wall 4i which connects 4h of drag stowages, and the periphery section, and much circular bore 4j is formed in the hoop direction at it. The reinforcement of spool 4 is maintained by this bore 4j, and lightweight-ization is in drawing. Moreover, two circular sulci 95 arranged at this heart for raising the drag engine performance are formed in the front face of wall 4k which connects 4h of drag stowages, and 4g of boss sections.

[0038] Skirt-board section 4b is closed-end body material prolonged back, after spreading in the direction of a path from the back end section of bobbin drum section 4a. In order to aim at improvement in lightweight-izing and a design also at the posterior part of skirt-board section

4b, 4m of bores is formed.

[0039] Flange 4c has ring section 4e of the metal with which started and 4d of sections and 4d of standup sections were equipped free [ attachment and detachment ], or the product made from a ceramic formed in the method of the outside of the direction of a path in one from the front end section of bobbin drum section 4a. Ring section 4e starts by 4f of flange holdown members thrust into the inner skin of bobbin drum section 4a, and is being fixed to 4d of sections.

[0040] The spool 4 is positioned in contact with the positioning washer 54 with which the spool shaft 15 was equipped.

[Configuration of a drag device] The drag device 60 is a device for being equipped between spool 4 and the spool shaft 15, and making a drag force act on spool 4. The drag device 60 has the tongue section 61 for adjusting a drag force by hand, and the friction section 62 which consists of a disk of two or more sheets pressed by the tongue section 61 at a spool 4 side, as shown in drawing 8.

[0041] The tongue section 61 has the pronunciation device 65 with which it was equipped between the part I material 63 prepared free [ rotation impossible and shaft-orientations migration on the spool shaft 15 ], the part II material 64 which it is arranged ahead [ of the part I material 63 / shaft-orientations ], and is screwed in the spool shaft 15, and the part I material 63 and the part II material 64.

[0042] the collar with which the part I material 63 has flange 63b of the shape of a ring of a major diameter from body 63a and body 63a -- it is a with cylinder-like member. The elliptical stop hole 66 which stops to rotation impossible is formed in the spool shaft 15 at the inner circumference section of body 63a. The back end side of body 63a of the part I material 63 contacts the friction section 62. It is equipped with the seal board 71 for preventing invasion of the liquid from the outside to the friction section 62 side between the inner skin of 4h of drag stowages inside body 63a of the part I material 63, and bobbin drum section 4a. The seal board 71 is the seal member obtained around the ring member made from stainless steel by carrying out outsert shaping of the dished elastic member made from NBR, and has the lip in the periphery section. The seal board 71 is energized by the drawing 8 left by the snap ring 79. Ring-like height 71c is formed in the drawing 8 left lateral of the seal board 71. This height 71c has prevented invasion of the liquid by the side of inner circumference in contact with the covering member 68 mentioned later. The lip of the seal board 71 is in contact with the tubed contact member 76 strongly inserted in the inner skin of 4h of drag stowages. The contact members 76 are the components of high degree of accuracy with which inner skin was machined, and can raise the seal engine performance by contacting a lip to the inner skin of such a contact member 76.

[0043] The part II material 64 counters with the part I material 63, and is prepared free [ the part I material 63 and relative rotation ]. The part II material 64 has the main part 67 of a tongue put in order and arranged ahead [ of the part I material 63 / spool shaft 15 direction ], and the covering member 68 which a tip is fixed to the periphery section of the main part 67 of a tongue, and contains the part I material 63 free [ relative rotation ] inside.

[0044] The main part 67 of a tongue is a disc-like member, and tongue 67a of the abbreviation trapezoidal shape projected ahead is formed in the front face. The interior of the main part 67 of a tongue is equipped with the nut 69 screwed at the tip of the spool shaft 15 free [ rotation impossible and shaft-orientations migration ]. Moreover, coiled spring 70 is arranged in the state of compression between the part II material 64 and a nut 69 at the periphery of the spool shaft 15.

[0045] The covering member 68 is a cylinder-like-object-with-base-like member with a stage, and body 63a of the part I material 63 has penetrated the pars basilaris ossis occipitalis. Moreover, height 71c of the seal board 71 is in contact with the pars basilaris ossis occipitalis. Cylinder part 68a of the covering member 68 is being fixed to the peripheral face of the main part 67 of a tongue by two spring pins 74. The spring pin 74 of such hollow can be removed by inserting and hooking a wire-like fixture from a feed hole. The tip periphery side of a spring pin 74 is equipped with the seal band 75 for a spring pin 74 falling out and preventing permeation of

a stop and the liquid from the tip periphery section of the covering member 68. A cross section is an annular solid made from a rectangular elastic body, and it is equipped with the seal band 75 in the condition of having elongated slightly.

[0046] The friction section 62 has the disk 91 in contact with the part I material 63, the drag pronunciation device 93 with which the disk 91 was equipped, and disc-like wall 4k of spool 4. The disk 91 has inner disk section 91a, body 91b prolonged in back from the periphery side of inner disk section 91a, and outside disk section 91c prolonged in the method of the outside of the direction of a path from the back end section of body 91b. Inner disk section 91a is stopped by the spool shaft 15, and a disk 91 cannot be rotated to the spool shaft 15. Moreover, while outside disk section 91c is equipped with the drag pronunciation device 93, the front face of wall 4k touches through the drag disk 92 made from graphite. The drag pronunciation device 93 is pronounced at the time of relative rotation with the spool shaft 15 and spool 4, i.e., drag actuation.

[0047] Thus, by the constituted drag device 60, since two circular sulci 95 are formed in wall 4k, a coefficient of static friction and a dynamic friction coefficient become a near value, it is stabilized and the set-up drag engine performance can be demonstrated. That is, although the drag force at the time of drag actuation initiation will become larger about 30 to 60% than a subsequent drag force if a coefficient of static friction differs from a dynamic friction coefficient greatly, the value is held down to about 10 – 20% by forming a circular sulcus 95.

[0048] [Actuation of a reel and actuation] In this spinning reel, the bail arm 40 is pushed down on a thread disconnection posture at the time of the thread deliveries at the time of casting etc. Consequently, it lets out a fishing line sequentially from the tip side of spool 4 with the self-weight of a mechanism. Since the specific gravity made from hard material has arranged the 2nd large flange 46 into the periphery portion which divides before flange 4c into two portions, contacts a fishing line at this time, and is easy to get damaged, the abrasion resistance and endurance in before flange 4c are maintainable.

[0049] At the time of thread winding, the bail arm 40 is returned to a thread winding posture side. If this rotates the handle assembly 1 in the thread winding direction, it will be automatically performed by work of the bail reversal device 16. The turning effort of the handle assembly 1 is transmitted to the pinion gear 12 through the master-gear shaft 10 and master gear 11. The turning effort transmitted to the pinion gear 12 is transmitted to the oscillating device 6 by the middle gear 23 through the linkage 7 which gears with the pinion gear 12 while it is transmitted to Rota 3 from anterior part 12a. Consequently, while Rota 3 rotates in the thread winding direction, spool 4 carries out both-way migration in order.

[0050] While fishing, a wave etc. may start a reel and a reel may be damp. Also in this case, since the drag device 60 is equipped with the seal board 71 or the seal band 75, water can invade into the friction section 62 easily neither from anterior part nor a posterior part. For this reason, once it adjusts a drag force, it is rare to change a drag force by \*\*\*\*\*.

[0051] Moreover, since the water seal 81 is formed between covering device material 2d and reel body 2a, invasion of the liquid into internal device wearing space can be prevented. For this reason, sea water etc. stops being able to go into the interior easily, and the crystal of a salt stops being able to deposit inside a gear, a guide portion, or bearing etc. easily.

[0052] Operation gestalt] besides [

(a) Although the main part 2 of a reel was illustrated as components for the 1st fishing, the protective cover 13 was illustrated as components for the 2nd fishing and the wearing was explained to the example with said operation gestalt, the conclusion structure of this invention is applicable to the conclusion structure of all the components for fishing.

[0053] (b) With said operation gestalt, although the projection was used for the baffle of the nut member 20, the through tube which the nut member 20 penetrates may be used for example, as an un-circular hole, and the baffle of the nut member may be carried out.

[0054] (c) With said operation gestalt, although the nut member 20 was made the product made from an aluminium alloy with said operation gestalt, the quality of the material of a nut member can use a pile metal and synthetic resin for a lifting for a Magnesium alloy and electrolytic etching.

[0055]

[Effect of the Invention] Since both components are concluded by equipping the components for the 1st fishing with a nut member at rotation impossible and shaft-orientations migration impossible rather than forming the direct female screw section in the components for the 1st fishing made from a Magnesium alloy according to this invention, even if it repeats desorption, the anticorrosion coat of the components for the 1st fishing cannot exfoliate easily. Moreover, electrolytic etching can be prevented by making it the product made from the metallurgy group made of synthetic resin which cannot carry out electrolytic etching of the nut member easily to the components for the 1st fishing. Furthermore, since it is not necessary to form anticorrosion coats, such as a paint film, in a nut member, even if the diameter of a screw is small, conclusion of both components is easy.

</SDO>

---

[Translation done.]

\* NOTICES \*

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

DESCRIPTION OF DRAWINGS

---

[Brief Description of the Drawings]

[Drawing 1] It is the cross-section schematic diagram of one mode of the golf ball of this invention.

[Description of Notations]

- 1 -- Core
- 2 -- Interlayer
- 3 -- Covering

---

[Translation done.]